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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/594,389	05/24/2007	Shingo Okamoto	060659	9276

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EXAMINER	
MOWLA, GOLAM	
ART UNIT	PAPER NUMBER
1723	

MAIL DATE	DELIVERY MODE
12/21/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/594,389	OKAMOTO ET AL.	
	Examiner	Art Unit	
	GOLAM MOWLA	1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 November 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) *6-8,11 and 12* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,9,10 and 13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

FINAL ACTION

Response to Amendment

1. Applicant's amendment of 11/16/2010 does not place the Application in condition for allowance.

2. Claims 1-13 are currently pending. Applicant has amended claim 1. Claims 6-8 and 11-12 are withdrawn from consideration as being part of non-elected invention.

Status of the Objections or Rejections

3. The objection to the Drawing from the Office Action dated 08/17/2010 is being maintained.

4. The rejection of claims 1-5, 9-10 and 13 from the Office Action dated 08/17/2010 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention is withdrawn in view of Applicant's amendment. All other rejection is being maintained.

Drawings

5. Figure 9 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR

1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 1 and 9-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Applicant's Admitted Prior Art (hereafter "AAPA").

Regarding claim 1, AAPA discloses a method of manufacturing a solar battery (solar battery string 100) (fig. 9) ("Background of the Invention" section of Applicant's Specification, P1/L5-P2/L18) by electrically connecting a plurality of cells (12) to one another using connection members (tab 14), comprising:

- a flux applying step (second step) (fig. 9) of applying a flux to the surfaces of the cells (12);
- a disposing step (third step) (fig. 9) of disposing the connection members (14) over the adjacent cells (12) to which the flux has been applied;
- a string step (fourth step or tab string step) (fig. 9) of connecting the connection members (14) to the cells (12) by soldering (P1/L25-P2/L7); and
- a cell heating step (cleaning step which includes "steaming" to remove the flux and all other residues) of heating the cells (12) connected to the connection members (14) (P2/L13-L18 and P3/L14-17).

Regarding claim 9, AAPA further discloses that the whole cells (12) are heated in the cell heating step (steaming step) (P1/L5-P2/L18).

Regarding claim 10, AAPA further discloses that the cell heating step includes: heat release means for preventing a solder which connects the connection members (14) to the cells (12) from being molten (P1/L5-P2/L18).

Claim Rejections - 35 USC § 103

8. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA as applied to claim 1 above.

Regarding claims 2-5, Applicant is directed above for complete discussion of AAPA with respect to claim 1, which is incorporated herein.

However, AAPA does not explicitly disclose whether a heating temperature of the cell heating step (steaming step) is not less than a boiling or activating temperature of the flux, and whether the heating temperature is 150°C and the heating time is three minutes.

It would have been obvious to one skilled in the art at the time of the invention to have determined the optimum temperature of steaming step and optimum time for steaming step (cleaning step) through routine extermination such that the surfaces of the cells (12) are cleaned, as desired by AAPA (P2/L13-18). In addition, in the case where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable

ranges by routine experimentation (MPEP § 2144.05 IIA, In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)).

10. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA as applied to claim 1 above, and further in view of Gonsiorawski et al. (US 5,074,920) and Tanaka et al. (JP 2003-168811, refer to translation provided by the applicant).

Applicant is directed above for complete discussion of AAPA with respect to claim 1, which is incorporated herein. However, the reference is silent as to whether in the string step, hot air is blown against the connection members to perform the soldering, and in the cell heating step, the cells are irradiated with an infrared ray to heat.

It is well known in the solar or photovoltaic art to blow hot air against the tabbing/connection member to perform soldering effectively, as taught by Gonsiorawski (see example 1).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to blow hot air against the tabbing/connection member to perform soldering as taught by Gonsiorawski in the method of AAPA such that the connection member is soldered effectively to the surface of the solar cell.

Tanaka discloses a solar battery (figs. 2-3) by electrically connecting a plurality of cells (photovoltaic cell 1) to one another using connection members (tab lead 4). Tanaka further teaches that the cells (1) the use of infrared heater (9) which irradiates infrared rays in order to efficiently solder the connection member (4) to the photovoltaic cell (1) (abstract and [0008-0009]).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to use the IR heater of Tanaka in the method of AAPA in order to efficiently solder the connection member to the photovoltaic cell, as taught by Tanaka.

Double Patenting

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., In re Berg, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

12. Claims 1-5, 9-10 and 13 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-22 of U.S. Patent No. 7,754,962 B2 in view of AAPA.

Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims 1-22 of U.S. Patent No. 7,754,962 B2 encompass all the limitations of instant claims 1-5, 9-10 and 13 except that U.S. Patent No. 7,754,962 B2 does not claim whether a flux has been applied to the surface of the cells.

However, it is well known in the solar or photovoltaic art to apply a flux on the surfaces of the solar cells to clean the surface as taught by AAPA (fig. 9) ("Background of the Invention" section of Applicant's Specification, P1/L5-P2/L18)

Therefore, it would have been obvious to one skilled in the art at the time of the invention to have claimed a flux applying step as taught by AAPA in the method of the claims 1-22 of U.S. Patent No. 7,754,962 B2 such that the surface of the cells are cleaned before applying connection member, as taught by AAPA.

Response to Arguments

13. Applicant's arguments with respect to claims 1-5, 9-10 and 13 have been considered but they are not persuasive.

Applicant argues that figure 9 depicts a conventional manufacturing step diagram of a solar battery and the term "conventional" is not same as the term "prior art" (see Remarks, page 6).

The Examiner respectfully disagrees. When the specification's background of the invention describes information as being known or conventional, the information can be considered as an admission of prior art (MPEP § 704.11 (b) I (F)) (see also MPEP § 2129).

Applicant further argued that an inventor's own foundational work should not be treated as a prior art solely because knowledge of this work is admitted (see page 6).

The Examiner respectfully disagrees. Instant specification fails to explicitly specify that figure 9 depicts inventors own foundational work. On the contrary, Applicant explicitly states that figure 9 depicts a **conventional** manufacturing step diagram of a solar battery, which implies such manufacturing process is in general known to public (MPEP § 704.11 (b) I (F)).

Conclusion

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Correspondence/Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GOLAM MOWLA whose telephone number is (571) 270-5268. The examiner can normally be reached on M-Th, 0800-1830 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, ALEXA NECKEL can be reached on (571) 272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/G. M./
Examiner, Art Unit 1723

/Alexa D. Neckel/
Supervisory Patent Examiner, Art Unit 1723